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PATHOLOGY OF EDWARDS SAPIEN TRANSCATHETER AORTIC VALVE FOLLOWING IMPLANTATION IN HUMANS

Poster Contributions
Poster Hall B1
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Session Title: Coronary I
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Background: The pathological response of Edwards SAPIEN transcatheter aortic valve (ESTAV) after implantation has not been fully described.

Methods: From our ESTAV pathology registry 31cases (mean age 82.6±7.6 years, 52% men) were included that were removed at autopsy or surgery (Figure). Paravalvular gaps, extent of thrombus, inflammation, neointima, and leaflet degeneration were assessed and semi-quantitatively graded by implant duration (≤30 days; 31-365 days; >365 days).

Results: Mean duration was 213±481 days. There were single ESTAV (n=24), ESTAV-in-ESTAV (n=4), and ESTAV-in-surgical aortic valve (n=3). Pathology findings included infective endocarditis (n=3) at 60, 65, and 596 days, valve thrombosis (n=1), and paravalvular gaps (n=2). Incorporation of the frame by neointima and chronic inflammation associated with granulation tissue (healing) increased significantly over time (Figure). Leaflet neointima, degeneration, thrombus and inflammation were minimal at all time points. Calcification was observed in only one valve at 5years.

Conclusion: ESTAV demonstrated increased healing by neointima over time. Leaflets were intact with minimal neointima, collagen degeneration and inflammation. Valve thrombosis, paravalvular gaps, and infective endocarditis were infrequently observed and correlated with clinical findings. Stenosis due to calcification was seen in only one valve at 5 years, a complication also seen in surgical aortic bioprosthetic valves of similar duration.